REMARKS

Claims 1-13 are pending in this application. Claims 1, 10, and 12 have been formally amended for purposes of clarity. Support for these amendments may be found throughout the specification, and specifically on page 6, lines 16-19. No new matter has been added by this amendment.

Rejection of claims 1-4 and 6-13 under 35 U.S.C. 103(a)

Claims 1-4 and 6-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et. al. (US 2001/0004352 A1) in view of Sahai et al. (US 6594699).

The present claimed arrangement provides a device for the adjustment of the bit rate of a stream of contents as a function of processing capabilities of at least one receiver, with the processing capabilities being the resources of at least one receiver fit for processing the data received. The contents are transmitted by a sender to the receiver via a network, according to a communication protocol providing for a return transmission of reception data of the contents by the receiver to the sender. A module inputs information relating to the capabilities. A further module estimates a required level for the bit rate at least as a function of the information. A module for writing stream adjustment cues writes the adjustment cues for return transmission with the reception data to the sender. The adjustment cues are capable of bringing about a modification of the bit rate in relation to the required level. The communication protocol provides for a return transmission to the sender of at least one parameter of the protocol is normally targeted at conditions of communication of the contents in the network between the sender and the receiver. The writing module is intended to modify the parameter in such a way as to use it to transmit the adjustment cues.

Watanabe describes a data receiving terminal. If data of a particular time section received from a data sending terminal does not satisfy a predetermined accumulation quality as the result of discrimination by a received-data quality discriminating section, an alternative-data sending requesting section requests a data sending terminal for alternative data satisfying the accumulation quality for the unsatisfied data of the particular time section.

The result is that the data receiving terminal can realize both reproduction of data with less sending delay and accumulation of high-quality data. (See paragraphs [0032] through [0043])

The claimed device advantageously modifies a parameter of a communication protocol **normally targeted** at conditions of communication in the network in order to transmit adjustment cues for adjusting **a** bit rate of content stream to be transmitted by a sender for receipt by a receiver. The adjustment cues incorporated into the modified parameter of the communication protocol are based on the **processing capabilities of the receiver.** Specifically, as stated in the present specification, "[t]his procedure is all the more surprising as by acting thus at the level of the receiver (or of a set of receivers), one has the possibility of unburdening the sender of any specific operation of tailoring to the receiver, **even though this sender has no implementation in relation to the processing capabilities of the receiver.** This result is obtained by acting on a parameter of the protocol which is normally targeted at communication conditions in the network, but to which an additional function is allocated: to implicitly incorporate information regarding the capabilities of the receiver" (see page 6, lines 11 – 19). Thus, the parameter is "modified artificially at the receiver side so that the sender is "made to believe" that the available bit rate is the one decodable by the receiver and not the available network bit rate" (see page 14, lines 28 – 31). The claimed device arrangement advantageously "permits a procedure for adjusting the bit rate to the processing capabilities of the receiver, **totally transparent to the sender. The latter, in fact, acts in accordance with the provisions of the protocol, with the aim of guarding against network congestions**" (page 7, lines 1 – 5). In other words, the parameters is diverted from its original use which is targeted at the "conditions of communication of said contents in said network between said sender and said receiver" to new purpose whereby information regarding the capabilities of the receiver are incorporated into the transmission protocol being sent back to the sender which takes into account receiver capabilities while the sender has no specific implementation **in relation to the processing capabilities of the receiver.** As discussed below Watanabe alone or in combination with Sahai fail to disclose or suggest the features of the present claimed device.

The Office Action asserts that Watanabe describes "a module for inputting information relating to said capabilities" as recited in amended claim 1 of the present arrangement. Applicant respectfully disagrees. There is nothing in Watanabe (with Sahai) that discloses or suggests inputting information related to the processing capabilities of the receiver which is then used to modify a parameter of a communication protocol in order to adjust the bit rate of a content stream sent by a sender. Watanabe (with Sahai) describes a received-data discriminating section 33 which is only able to determine the quality of received AV data by consulting the data quality information attached by sending terminal 2 to the AV data (Figure 5, paragraphs [0085] and [0086]). However, discriminating based on the quality of received data is NOT equivalent to adusting a bit rate of an incoming content stream based on the "processing capabilities of the receiver." The data quality discriminating section 33 of Watanabe only receives data, at its input, independent of the capacity of the receiver. Additionally, Watanabe (with Sahai) teach against the operation of the claimed device because, as stated in paragraphs [0029] and [0030] the AV data are "accumulated for subsequent use". Therefore, it is **absolutely required** that "the originally necessary quality is kept throughout the entire data". Unlike the claimed arrangement, in Watanabe, "the receiving terminal accumulating received data would become unable to receive data in the originally required quality if the sending quality is changed at the sending terminal in conformity with the traffic of the above mentioned network". This is why Watanabe describes a data receiving terminal comprising a quality discriminating section to check if quality of received data satisfy a predetermined quality and request alternative data if not. However, this is in direct contrast to the claimed device whereby a parameter of a communication protocol is modified to include cues that are determined based on the processing capabilities of the receiver to adjust the bit rate in later content being sent from a sender. Unlike the claimed arrangement, Watanbe requires that original transmission quality of the video be maintained. Nowhere, in Watanabe are processing capabilities of the receiving device taken into account. In Watanabe, quality degradation of received data and consequently request for resending data is only due to traffic load of the network" (see [0007] [0016] [0018] [0026] [0029]).

The Examiner cites paragraphs [0095] and [0096] of Watanabe as disclosing the claimed module for inputting information relating to the capabilities" of the receiver. Further, in Response B on page 10 of the Office Action, the Examiner notes Applicant's arguments and respectfully disagrees. However, the Examiner fails to provide any reasons why Applicant's arguments are not persuasive and instead cites column 3, lines 5 – 35 of Sahai to describe including the capabilities of the receiver. Applicant respectfully disagrees with these assertions. Applicant respectfully submits that the remarks presented in the response filed April 21, 2009 regarding paragraphs [0095] and [0096] are valid because the receiver in Watanabe only checks the level of quality of received data with respect to a predefined level of quality. There is no input of data relating the processing capabilities of the receiver for any purpose. Moreover, unlike the claimed arrangement, Watanabe (with Sahai) does not describe that a receiver selects the bit rate at which the receiver wants to receive. In addition, "processing capabilities" as recited in amended claim 1 of the present arrangement relates only to the receiver and thus does not include the encoding rate which is merely a parameter associated with a data stream. This data stream parameter is NOT a "processing capability" of a device that is used to modify a bit rate at which content is to be sent to the receiver. Thus, Watanabe neither discloses nor suggests "a module for inputting information relating to said capabilities" as recited in amended claim 1 of the present arrangement.

Furthermore, the section of Sahai cited in Response B on page 10 of the Office Action, when taken alone or in combination with Watanabe, fails to disclose or suggest the claimed device. Specifically, column 5, lines 5 – 35, relied on in the Office Action, describes a conventional communication method between client and server whereby a client sends a configuration file over a mutually agreed upon communication protocol, such as HTTP, to define how the server is to transmit data to the client. This is fundamentally different from the claimed arrangement "wherein said communication protocol provides for a return transmission to said sender of **at least one parameter of the protocol normally targeted at conditions of communication of said contents in said network between said sender and said receiver**, the writing module is intended to modify said parameter said parameter in such a way as to use it to transmit said adjustment cues" for adjusting the bit rate of a content stream to be received by the receiver. Both Sahai and Watanabe use communication protocols

as they are intended to be used. In Sahai, a separate configuration file is transmitted using HTTP and Watanable uses the RTCP protocol as it is intended whereby the parameters of the RR packets are used to transmit the time information as defined by the RTCP protocol (see paragrapgh [0023]). Neither Sahai or Watanabe disclose or suggest modifying a parameter of the communication protocol based on "information relating to said capabilities" of a receiver which is used to estimate "a required level for said bit rate at least as a function of said information" for "bringing about a modification of said bit rate" as in the claimed device.

The Examiner maintains his assertion, both on page 3 and page 10 of the Office Action, that paragraph [0037] of Watanabe describes "a module for estimating a required level for said bit rate at least as a function of said information" as recited in amended claim 1 of the present arrangement. Applicant respectfully disagrees. Contrary to the assertion in the Office Action, Watanabe in paragraph [0037] merely discloses a module able to discriminate whether or not data received satisfies a predetermined accumulation quality. The module relied on in the Rejection is merely a verification module, and **does not estimate a bit rate at all for any purpose.** This is fundamentally different from the claimed device that estimates a required level for a bit rate used for transmitting content to the receiver "as a function of said information" relating to the capabilities of the receiver. Unlike the claimed arrangement, the module described in paragraph [0037] of Watanabe relates **exclusively to previously received image quality** (see also figure 1). The module described in Watanabe and relied on in the Office Action is not concerned with the capabilities of the receiver as in the claimed arrangement. Received image quality is completely independent of any capabilities of the receiver and therefore determining if a criterion in image quality is met is NOT equivalent to "estimating a required level for said bit rate at least as a function of said information" as in the present claimed arrangement.

The Office Action further relies on paragraphs [0038] and [0043] of Watanabe in support of the assertion that "a module for writing stream adjustment cues that is intended to write said adjustment cues for return transmission with said reception data to said sender, said adjustment cues being capable of bringing about a modification of said bit rate in relation to said required level" is disclosed by Watanabe. Applicant respectfully disagrees. Paragraph

[0038] merely provides for requesting additional data when a first set does not satisfy a certain criteria. A further request for data is NOT equivalent to "writing stream adjustment cues...said adjustment cues being capable of bringing about a modification of said bit rate in relation to said required level" as determined based on the processing capabilities of the receiver and which modifies actual communication protocol to adjust the bit rate of the content stream.

Paragraph [0043] relied on in Response C on page 10 of the Office Action similarly neither discloses nor suggests the claimed features. Paragraph [0043] describes the operation of the "data sending terminal" upon receiving a further request (see paragraph [0040]). This is fundamentally different from the claimed arrangement which provides for a receiver device for adjusting the bit rate of a content stream. The device described in paragraph [0043] of Watanabe is the sending device and NOT a receiver as claimed in the present arrangement. The claimed arrangement is able to affect change of the sender stream using only the receiver because the claimed device estimates the required bit rate as a function of the processing capabilities of the receiver and modifies a conventional communication protocol to transmit said information to the sender. Therefore, the operation relied on in Response C (the sending terminal) is in direct contrast to the claimed arrangement. Thus, Watanabe neither discloses nor suggests "a module for writing stream adjustment cues that is intended to write said adjustment cues for return transmission with said reception data to said sender, said adjustment cues being capable of bringing about a modification of said bit rate in relation to said required level" as recited in amended claim 1 of the present arrangement.

Watanabe also neither discloses nor suggests "said communication protocol providing for a return transmission to said sender of at least one parameter of the protocol normally targeted at conditions of communication of said contents in said network between said sender and said receiver, the writing module is intended to modify said parameter in such a way as to use it to transmit said adjustment cues" as recited in amended claim 1 of the present arrangement. Watanabe uses the RTCP protocol, which means that the parameters of the RR packets are used to transmit time information as defined by the RTCP protocol (paragraph [0023]). Watanabe uses the RTCP protocol as it is intended to be used. Therefore, in

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Watanabe, the parameters of the RR packets are used to transmit the time information as defined by the RTCP protocol (see paragraph [0023]). Watanabe does modify one of these protocol parameters normally targeted at conditions of communication of said contents in the network in such a way to transmit **adjustment cues** which are capable of modifying the bit rate **in relation to a required bit rate level estimated as a function of processing capabilities of the receiver.** However, QoS is not a protocol parameter. QoS refers to resource reservation control mechanisms. In Watanabe, no protocol parameter is modified in any manner for any purpose.

Furthermore, Applicant asserts that the Examiner has misinterpreted the reference when citing paragraph [0038] on page 3 of the Office Action. In Watanabe, if received data are not at a predetermined quality level, a request should be sent to the sending terminal for alternative data (paragraph [0038]). Watanabe is silent with regards to parameters "of the protocol normally targeted at conditions of communication of the contents in said network between said sender and said receiver" which are modified to include the claimed "adjustment cues" used to adjust the bit rate of the content stream. Furthermore, a request for alternative data to be sent is also not the same as modifying parameters "to transmit said adjustment cues." Thus, Watanabe neither discloses nor suggests "said communication protocol providing for a return transmission to said sender of at least one parameter of the protocol normally targeted at conditions of communication of said contents in said network between said sender and said receiver, the writing module is intended to modify said parameter in such a way as to use it to transmit said adjustment cues" as recited in amended claim 1 of the present arrangement.

On page 5 the Office Action seemingly contradicts earlier assertions made on pages 3 and 4 by conceding that Watanabe "does not explicitly teach said processing capabilities being the resources of said at least one receiver fit for processing the data received". The Office Action further relies on column 3, lines 5 – 25 of Sahai in support of the assertion that the claimed feature is disclosed. Applicant respectfully disagrees. Contrary to the assertion on page 5 of the Office Action, Sahai, similarly to Watanabe, fails to disclose or suggest "said processing capabilities being the resources of said at least one receiver fit for processing the

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data received" being used to estimate "a required bit level as a function" of the information relating to the processing capabilities of the receiver to write adjustment cues for adjusting the bit rate of the content stream which are transmitted to a sender by modifying "at least one parameter of the [communication] protocol normally targeted at conditions of communication of said contents in said network between said sender and said receiver" as in the claimed arrangement.

In Sahai, the client sends a separate and distinct configuration file regarding client capabilities via an HTTP communication protocol (see col. 5, lines 21-23). Therefore, in Sahai the capabilities of the receiver are sent in the conventional, known manner. This is fundamentally different from the claimed arrangement in which "said communication protocol providing for a return transmission to said sender of at least one parameter of the protocol normally targeted at conditions of communication of said contents in said network between said sender and said receiver, the writing module is intended to modify said parameter in such a way as to use it to transmit said adjustment cues". Sahai operates similarly to the prior art described on page 2, lines 14 – 19 of the present specification. Specifically, "[a]mong the methods disclosed pertaining to the tailoring of a sender to the capabilities of a receiver, Japanese document JP2000-270330 discloses a tailoring of send bit rates as a function of processing capabilities for terminals with decoders, by means of a prior notification to the sender of these capabilities by the receiver terminals". In Sahai, a configuration file is sent prior to transmission by the sender. This is fundamentally different from the claimed arrangement which enables adjustment of the bit rate as a function of receiver capability after having already received a portion of the content stream by modifying a parameter of the communication protocol that is associated with network traffic to include the adjustment cues for adjusting the bit rate of the stream. Sahai alone or in combination with Watanabe, fail to disclose or suggest the claimed feature. Rather, Sahai (with Watanabe) provides that **a specific transmission protocol must be agreed between the sender and the receiver** so as to achieve any modification which includes the drawback of requiring the implementation of a system that is coherent both as regards the senders and the receivers. Thus, Sahai (with Watanabe) neither disclose or suggest the claimed device.

If one were to combine Watanabe with Sahai the skilled person would build a server-client system, wherein the client sends "the client specification, capability (…) via HTTP to the server" as taught by Sahai in col.5, lines 21-23. In response to receipt of this signal from the client "the server chooses the appropriate media asset type, the correct bit rate to use, and, if necessary, dynamically adjusts the bit rate **before** delivering the asset to the client" based on "the CPU processing power, the software and hardware capabilities of the client" as taught by Sahai on col.6, lines 35-42. Then, the quality discriminating section ([0037] in Watanabe) in the client checks if the received data satisfies a predetermined image quality. If not, because of heavy traffic ([0029] in Watanabe), then the alternative-data sending requesting section ([0038] of Watanabe) in the client requests that the server send alternative data. In such a combined solution, the request from the alternative-data sending requesting section ([0038] of Watanabe) is not based on capabilities of the receiver at all but on the traffic load. In addition, in such a combined solution no protocol parameter <u>normally targeted at</u> conditions of communication of data in the network is modified in such a way as to use it to transmit adjustment cues for use in adjusting the bit rate of the content stream transmitted by the sender.

Therefore, it is respectfully submitted that the rejection to claim 1 is satisfied and should be withdrawn.

Claims 2-4 and 6-9 are dependent on claim 1 and are considered patentable for the reasons set forth above regarding claim 1. Therefore, it is respectfully submitted that the rejection to claims 2-4 and 6-9 is satisfied and should be withdrawn.

Independent claim 10 provides a method including features similar to apparatus claim 1 and is considered patentable for the same reasons set forth above regarding claim 1. Therefore, it is respectfully submitted that the rejection to claim 10 is satisfied and should be withdrawn.

Claim 11 is dependent on claim 10 and is considered patentable for the reasons set forth above regarding claim 10. Therefore, it is respectfully submitted that the rejection to claim 11 is satisfied and should be withdrawn.

Independent claim 12 includes features similar to those found in claim 1 and is considered patentable for the same reasons set forth above regarding claim 1. Therefore, it is respectfully submitted that the rejection to claim 12 is satisfied and should be withdrawn.

Claim 13 is dependent on claim 1 and is considered patentable for the reasons set forth above regarding claim 1. Claim 13 is also considered patentable because Sahai (with Watanabe) fails to disclose or suggest that "the processing capabilities of said at least one receiver belong to the set of processing capabilities comprising data processing speed; memory volume; energy consumption; and presence of components dedicated to the processing of the contents" as recited in claim 13. While Sahai discusses receiver capabilities, these capabilities are identified prior to any transmission between the sender and receiver and are done so in a conventional way. Sahai (with Watanabe) fails to disclose or suggest "said communication protocol providing for a return transmission to said sender of at least one parameter of the protocol normally targeted at conditions of communication of said contents in said network between said sender and said receiver, the writing module is intended to modify said parameter in such a way as to use it to transmit said adjustment cues" which are derived based on the processing capabilities of the receiver and transmitted in the protocol during the return transmission. Unlike the claimed device, Sahai (with Watanabe) merely identifies capabilities and sends them as a data file. This is fundamentally different from the claimed arrangement wherein "the writing module is intended to modify said parameter [of the communication protocol] in such a way as to use it to transmit said adjustment cutes" as recited in the claimed arrangement. Therefore, it is respectfully submitted that the rejection to claim 13 is satisfied and should be withdrawn.

In view of the above remarks, it is respectfully submitted that this rejection under 35 U.S.C. 102(b) is satisfied and should be withdrawn.

Rejection of claim 5 under 35 U.S.C. 103(a)

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al. (US 2001/0004352 A1) in view of Sahai et al. (US 6594699) and further in view of Teruhi et al. (US 7327676 B2).

Claim 5 is dependent on claim 1 and is considered patentable for the reasons set forth above regarding claim 1. Teruhi was cited only to show that "the parameter of the protocol comprises a contents loss rate" as recited in claim 5. However, as shown in Fig. 4 of Teruhi, the format of the receiver report includes the number of packets lost. This report is a separate and distinct piece of data. The section of the receiver report in Teruhi is not "a parameter of the [communication] protocol" that is modified by the claimed device.

Teruhi describes a source node which obtains from a destination node, quality information on routes to the destination node, and adaptively changes data distribution ratios for the multiple routes based on the quality information. (col. 2, lines 1-27). However, Teruhi neither discloses nor suggests "said processing capabilities being the resources of said at least one receiver fit for processing the data received...a module for estimating a required level for said bit rate at least as a function of said information" and a "communication protocol providing for a return transmission to said sender of at least one parameter relating to conditions of communication of said contents in said network between said sender and said receiver, the writing module is intended to modify said parameter in such a way as to use it to transmit said adjustment cues" as recited in amended claim 1 of the present arrangement.

In addition, a combined system of Watanabe, Sahai and Teruhi, similar to the individual systems, also neither discloses nor suggests the aforementioned features of amended claim 1 of the present arrangement. The combination of Watanabe and Teruhi would instead create a system with a receiver without a device allowing for adjustment of the bit rate stream of contents as a function of processing capabilities by modifying a parameter of the communication protocol normally targeted at network traffic to include adjustment cues based on the processing capabilities of the receiver. Thus, the combination of Watanabe, Sahai and Teruhi, similar to the individual systems, neither discloses nor suggests "said

processing capabilities being the resources of said at least one receiver fit for processing the data received," "a module for estimating a required level for said bit rate at least as a function of said information" and a "communication protocol providing for a return transmission to said sender of at least one parameter of the protocol normally targeted at conditions of communication of said contents in said network between said sender and said receiver, the writing module is intended to modify said parameter in such a way as to use it to transmit said adjustment cues" as recited in amended claim 1 of the present arrangement.
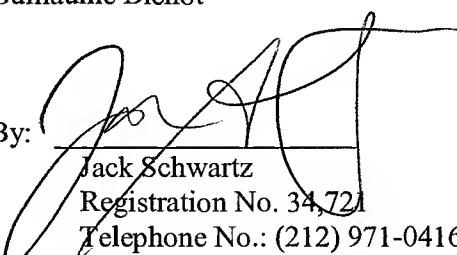
In view of the above remarks, it is respectfully submitted that this rejection is satisfied and should be withdrawn.

Having fully addressed the Examiner's rejections, it is believed that, in view of the preceding amendments and remarks, this application stands in condition for allowance. Accordingly then, reconsideration and allowance are respectfully solicited. If, however, the Examiner is of the opinion that such action cannot be taken, the Examiner is invited to contact the applicant's attorney at the phone number below, so that a mutually convenient date and time for a telephonic interview may be scheduled.

No additional fee is believed due. However, if an additional fee is due, please charge the additional fee to Deposit Account 07-0832.

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